Fairfax County VIRGINIA

SECTION 2

STRATEGIC DIRECTIONS AND INITIATIVES

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FEATURED IN THIS SECTION

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2.1 STATEMENT OF DIRECTION

Keeping up with the pace of change in technology and using technology effectively to meet end-user requirements and expectations are still the most critical challenges facing information technology providers. Advances in technology can enable the workforce to provide better and faster service at a reduced cost, but changes in technology can be expensive and complex. New technology must be adopted carefully and integrated wisely into the existing technology infrastructure of an organization in order to maximize the benefits in a cost-effective manner.

The following five initiatives address the County's objective to provide effective, efficient and customer-oriented access to data and services for constituents and for internal government customers.

2.2 E-GOVERNMENT

The e-Government initiative uses enabling technology for Fairfax County Government to provide a 24-hour operation. The Fairfax County Web Site, Kiosks, Interactive Voice Response (IVR) systems and Cable TV platforms are integrated into a single strategy for access to information and services in the County's goal to provide a "government without walls, doors, or clocks." In addition to the on-going efforts to enhance the look, feel and navigation of the web interface and deploying new services and transactions, the county has achieved much success and acclaim for its e-government thrust in integrating the WEB, IVR and Kiosk platforms in to provide a complete public access to services and programs. In FY2005, the county will continue its efforts to add new services to the e-government channels, including new transactions and e-payments. An exciting pilot which is the first of its kind will extend interactive cable TV capability over the cable system as a web channel to conduct services with the county. The e-government program will also continue to work with the Commonwealth of Virginia and federal government agencies in developing web services standards which will enable cooperative access and seamless integration of information for presentation of information and services regardless of the origin or the source.

Major FY 2004 accomplishments for e-Government initiatives included new applications such as Calendar of Events, Reporting Tax Evaders, Digital Map Viewer, My Neighborhood and Applicant Information Management System (AIMS) system used for submitting resumes for County employment, A new e-notification and alerting system was implemented, which aided in communicating critical information via messages through web and e-mail to computers, laptops, PDAs, cell phones and other mobile communications devices supporting emergency management and other key services. We also redesigned information architecture for the kiosk and replaced kiosk hardware and enclosures. We have upgraded our infrastructure architectures by converting to Windows 2000, and implemented. Net frame which has enabled and positioned us to take advantage of features like text-to-speech, speech recognition, XML and web services. The public web site *www.fairfaxcounty.gov* main subject area pages (Living, Doing Business, Visiting and Government) have been revamped and updated. Significant enhancements of the site included: News & Information section, Emergency Information, Local Weather and improved navigation. A new wireless platform was introduced which allows citizens to access information via mobile devices, such as Personal Digital Assistance (PDA), cell phones etc.

Goals for FY 2005 are to continue building new e-service transactions, e-payments and to enhance and support existing applications. DIT will continue to build and improve the infrastructure architectures in order to meet new requirements. DIT will introduce a new platform, Interactive Cable TV, which will allow the citizens to obtain information and services in the comfort of their

home. DIT will consolidate the architectures of IVR, Kiosk, Web, Infoweb and Wireless technologies with the ultimate goal being the enhancement of both the information and infrastructure architectures supporting e-government initiatives, which will facilitate the delivery of integrated and accurate information to citizens via multiple platforms along with an improved web search. Delivery of integrated and accurate information to citizens across multiple platforms will be achieved through full implementation of a Content Management System (CMS).

CUSTOMER'S SERVED:

Kiosk: over 7,529,000 "Screen Touches" to date or over 361,160 total users

IVR: 852,000 total calls

Web: 578,000 visits per month

INFORMATION AND SERVICES AVAILABLE

Adult education classes ..... *Web*
Becoming a child-care provider ..... *Web, Kiosk*
Board Meeting minutes (searchable) ..... *Web, Kiosk*
Budget information and approved budget ..... *Web*
Bus tour schedule ..... *Web, Kiosk*
Child-care provider list ..... *Web, Kiosk*
Collection of household trash & recyclables ..... *IVR, Kiosk*
County Code — full text ..... *Web*
County demographics ..... *Web, Kiosk*
County maps, scrollable, printable ..... *Web, Kiosk*
Courts — Circuit, General District, and Juvenile ..... *Web, Kiosk, IVR*
Crime statistics, Wanted List, Neighborhood Watch ..... *Web*
Fire & Rescue Media Information ..... *IVR, Kiosk*
Health information ..... *Web, IVR, Kiosk*
Housing information ..... *Web, IVR, Kiosk*
Inspection scheduling status ..... *IVR, Kiosk*
Information for victims of crime ..... *IVR, Kiosk*
Job opportunities ..... *Web, Kiosk*
Library information line ..... *IVR*
Multi-jurisdictional information ..... *Kiosk*
Newcomer information ..... *Web, IVR, Kiosk*
Parks/Recreation information ..... *Web, IVR, Kiosk*
Public safety information ..... *Web, IVR, Kiosk*
Real estate property assessment & tax information ..... *Web, IVR, Kiosk*
Seniors information and programs ... *Web, IVR, Kiosk*

DOING BUSINESS WITH THE COUNTY

Access Health Department food inspections database ..... *Web*
Access GIS aerial photography with pan and zoom ..... *Web*
Apply for County jobs ..... *Web, Kiosk*
Apply for a library card ..... *Web, Kiosk*
Board of Supervisors compliant forms ..... *Web, Kiosk*
Building Permit Fee Estimate ..... *Web, Kiosk*
Directly connect to County staff ..... *Kiosk*
Download request for proposal/ invitation for bid ..... *Web*
Electronic Mailing List ..... *Web, Kiosk*
Estimate Electrical Permit Fee ..... *Web, Kiosk*
File complaints about landlord or consumer problems ..... *Web, Kiosk*
Find location of closest Library by entering zip code ..... *Web, Kiosk*
Register & pay for Park Authority classes, camps, & tours ..... *Web, IVR*
Locate facilities and public transportation ..... *Kiosk*
Obtain permit/plan status ..... *Web, IVR, Kiosk*
Pay taxes with credit card ..... *Web, Kiosk*
Pay taxes via eCheck ..... *Web*
Pay traffic tickets with credit card ..... *IVR, Kiosk*
Query current real estate property & tax information ..... *Web, IVR, Kiosk*
Query Human Services online "Resource Guide" ..... *Web, Kiosk*
Query for current position on the Housing Waiting List ..... *IVR, Kiosk*
Query specific court case information ..... *IVR*
Query status of an inspection, permit, or plan ..... *Web, IVR, Kiosk*
Query Victim Services data for offender release date info ..... *IVR*
Register a vehicle ..... *Web*

Request faxes of court fees and procedures ..... *IVR, Kiosk*

Renew vehicle registrations ..... *Kiosk*

Reserve a golf tee time ..... *Web, Kiosk*

Reserve/renew Library books — search catalogue ..... *Web, Kiosk*

Reserve a picnic area ..... *Web, Kiosk*

Report change of address for tax purposes ..... *Web*

Report a lost pet ..... *Web*

Report a zoning or noise ordinance violation ..... *Web, IVR, Kiosk*

Search for information in historical newspaper ..... *Web*

Search for Health Department clinics by area of County ..... *IVR*

Search for County agency telephone numbers by keyword ..... *IVR, Kiosk*

Subscribe to County publications ..... *Web, Kiosk*

Volunteer to help in the Library or Parks ..... *Web, Kiosk*

Zoning and Noise Ordinance compliant form ..... *Web, Kiosk*

2.3 INTEGRATED CONTENT AND DOCUMENT MANAGEMENT

The county is strategically approaching content and document management from an integrated, enterprise approach. Content Management becomes the foundation for organizing and using information from structured data (through business applications), and unstructured data in electronic or imaged documents (word processing documents, spreadsheets, e-mail, and reports). The county is developing an enterprise information architecture which frames this plan and becomes a tool for web services, applications development, and web static page content search and navigation. The solution also includes a rich document management capability which allows more efficient management, flow and storage of vast amounts of required paper records. Since many government processes still require paper records, requiring departments to store large volumes of paper over prolonged periods of time, frequent retrieval of the documents is necessary, time consuming, cumbersome and inefficient. The enterprise document management technology with incorporated workflow solution will improve business process efficiency and productivity, and integrates the need to view hard copy records with automated applications to complete services. In addition to fast and reliable business processes, this will minimize the demand for additional paper records storage space, protect against mounting storage costs, and reduce human and physical plant asset risks associated with handling of the voluminous units of paper.

The Business Reference Model (BRM) which is the basis for classification of data that aligns with three Business Areas: Service to Citizens, Support Delivery of Services and Internal Operations and Infrastructure. These areas are subdivided into thirty-five separate Lines of Business which cut across all agencies. This BRM provides the foundation for the Enterprise Information Architecture and will allow for the integration of data across Lines of Business within the County. The BRM serves as the foundation for a more exhaustive Taxonomy of Services for the County which is currently under development. When combined with other metadata, this taxonomy will provide for improved search and classification capabilities across application data and static content. This classification of data is the first and most important step in correctly implementing an Enterprise Content Management System.

In addition to working on the Information Architecture Framework described above and implementing the Content Management System tool (Documentum is the tool selected), the following was also accomplished:

- Classified the variety of information types currently offered on the Web Site
- Analyzed workflow processes for contributing content to the Web
- Analyzed integration possibilities for Web and Kiosk Content
- Explored delivery platforms for Mobile Content (i.e. Wireless “Contact Us” Pilot)
- Developed an XML Document Model for Static Content
- Identified Metadata to be associated with Static Content; and
- Developed a Draft Technical Architecture for Content Management

Goals for FY 2005 as they relate to Integrated Content and Document Management are to:

- ❖ Continue work on the Information Architecture Framework including:
  - the Taxonomy of Services for the County
  - the Inventory of Systems classified by Lines of Business
  - development of an XML Namespace for the County
  - development of repositories for storing XML Objects
- ❖ Finalize the enterprise architecture for Content Management
- ❖ Implement and configure the Content Management software according to the architecture
- ❖ Develop the template and methodology for agency web files which are currently on the county's WEBsite
- ❖ Convert the content of those files to XML
- ❖ Deliver that singular XML content to Web, Kiosk and Mobile platforms

Content management intersects with document management. For business activities that also rely on a variety of documents, initiative employs technology at the beginning of a document's life cycle, using the system to track the documents and enable automated workflow processes through the entire life cycle. This

comprehensive approach and associated implementation of technology is called Integrated Document Management (IDM). Through research and analysis conducted in FY 2003, best in breed products for content management engines also incorporated document management needs. The integrated solution provides a seamless integration for use of information found in imaged documents and information in databases and other systems required for a complete business transaction.

IDM technology provides the ability to organize electronic documents; manage content; enable secure access to documents; route documents and automate related tasks; and facilitate document distribution. Document imaging will continue to play a much larger role in the county's business environment. Despite e-government efforts, there remain situations where there is a continued requirement for use of paper documents in certain business processes, which can be addressed through the growing scope of imaging technology. Because of legal mandates, many government processes are paper-intensive, requiring many departments to store large volumes of paper over prolonged periods of time. Consequently, many County departments are exploring technical solutions to alleviate the demand for increased storage space needs, protect against potential disasters that can potentially destroy volumes of important paper documents, and improve business processes. IDM solutions encompass core business practices, as well as provide better archival and disaster recovery capabilities. The County's increasing investment in this technology is closely tied to these business trends as well as the growing document management needs of its agencies.

In FY2005, the County will continue to implement IDM technology for document work flow projects in the Office of the Sheriff, the Juvenile and Domestic Relations District Court (described in greater detail in Section 3, Information Technology Projects), and, new business processes in the Department of Finance and the Department of Family Services. Business requirements for these projects were defined during FY 2004. Although the individual departmental business requirements vary for the use of IDM technology, the following benefits and quality improvements will result from these projects:

- ▶ Increased worker productivity by allowing employees to share and act on accurate information through the delivery of the right documents at the right time
- ▶ Enhanced communication and collaboration through shared information
- ▶ Improved speed of the information flow throughout county agencies
- ▶ Improved access and security through controlled access to sensitive documents
- ▶ Reduced time spent searching for critical documents
- ▶ Improved disaster recovery and electronic storage and backup of information
- ▶ Reduction in clerical, paper, printing and storage costs

These projects will also facilitate disaster planning efforts to ensure business continuity. An important consideration for the IDM projects will be to provide for

remote access for workers that heretofore relied on paper-intensive processes and have no capability to backup critical paper files and documents. Overall, document management and imaging projects address operational efficiency and effectiveness, with the capability to reduce costs, accelerate business processes, ensure regulatory compliance, and improving communication in the agencies. These projects, combined with the potential for integration of content in data-bases also supporting the business process, will result in a seamless process for information utility.

2.4 CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

There has been a paradigm shift over the last decade in the way Fairfax County conducts business. The number of web based transactions, phone calls, e-mails and faxes to the County has increased, while the number of walk-ins has decreased as citizen and business expectations for convenient customer service and accurate information continues to grow. In response to these changes, the County has successfully entered into the world of customer relationship management technology (CRM), which has yielded better responsiveness and improved internal efficiencies. CRM technology has been implemented in the offices of the Board of Supervisors, the Clerk to the Board, Office of Public Affairs, Consumer Protection, Human Rights office, Department of Public Works and Environmental Management, County Executive and the County's Legislative function within the County Executive's office. Efforts continue with projects for the Department of Transportation beginning with contact management, and in the Department of Human Services Systems for improved response and management for constituent services.

Incorporation of CRM technology has yielded numerous benefits for constituents and the multiple County offices and agencies using CRM since its implementation. The Web enabled system 'Internet Quorum' replaced several obsolete custom applications. This platform has become the County's standard solution for tracking contacts and resolution, with improvements made in the underlying infrastructure that allows multiple user agencies to use the system under an enterprise approach, making the allocation of system resources and support more efficient.

The system provides the following diverse functionality: integrated management of correspondence; the ability to proactively message constituents; the capability for Consumer Protection investigators to better manage their cases; access to historical data; the ability to collaborate and relate data together; downloading of legislative bills from the General Assembly session directly into the system, eliminating retyping; capabilities for imaging and workflow and other time saving functions. The Consumer Services information in the system is available online, and allows constituents to conduct their own research as well as report problems to the department via the Web.

There have been significant staff productivity and efficiency improvements with the use of CRM. County staff can now conduct business more proactively, mining the results of interactions and services. This allows staff the opportunity to be more involved in the mission and goals of their agencies and to better respond to constituent needs. The system has a powerful relational database back-end, which reduces the time and resources needed to support the application and its infrastructure. Opportunities for staff to participate in telecommuting and flextime work hours have dramatically increased.

In the Board of Supervisors offices and the Office of Public Affairs, the CRM system is used to record, route and manage interactions with constituents and organizations. The benefits include integrated management of correspondence, which handles contacts of every kind including letters, e-mail, faxes, phone calls, visits, and meetings. The system reduces the amount of time staff spend researching the status of various constituent contacts; and provides the ability to efficiently track and report on the various large cases in a supervisor district as all information is stored in one place; improved service delivery to constituents due to proactive notifications concerning local matters of interest; and system integration with other technologies such as imaging which improves ability to find and retrieve documents easily. The software also tracks the creation of outgoing letters and scanned incoming documents that are linked to the constituent's correspondence history.

The Clerk to the Board of Supervisors uses the Boards and Commissions module to allow users to track appointments and nominations to boards, committees and councils and to keep a complete correspondence history regarding contact with these individuals. Consumer Protection Division's modules include Complaint Tracking, License Administration and Taxicab Inspections. The systems enable staff to rapidly open and begin investigating cases. By expediting the administrative components of case investigations, the initial response time has been reduced, resulting in earlier detection of consumer protection violations. The historical research required to discern whether businesses are repeat offenders or not, and how past cases were resolved is now expedited; cross-referencing cases between investigators allows staff to share online information pertaining to the same or similar consumer protection violations, and facilitates collaboration between investigators on complaints and resolution techniques. The system also allows citizens to access complaint histories of businesses online in order to research and better determine the pros and cons of doing business with those merchants. In addition, the system allows Fairfax County Police access to information to check the licenses of all solicitors, peddlers, pawnbrokers, massage therapists, taxi drivers, etc.

The Office of the County Executive uses the Legislative Tracking Monitor application to assist County agencies to monitor, review, respond to and track state legislation when the Virginia General Assembly is in session. The system includes the automated downloading of legislative bill information from the Commonwealth's Legislative Information System into the County's CRM system, eliminating the need for a legislative aid to manually perform the data entry task and faster ability of the need for County staff to search for bills and comments. The Office of Public Affairs uses this system and includes publications and brochure tracking and workflow. Other benefits include elimination of the cumbersome process of manually tracking constituent requests with a more efficient means of processing and tracking mandated Freedom of Information requests. The Human Rights Commission uses the system to create, track and report on case workflows allowing the investigators to meet multiple requirements. It also streamlines complex discrimination processes and addresses privacy concerns for investigator and conciliators.

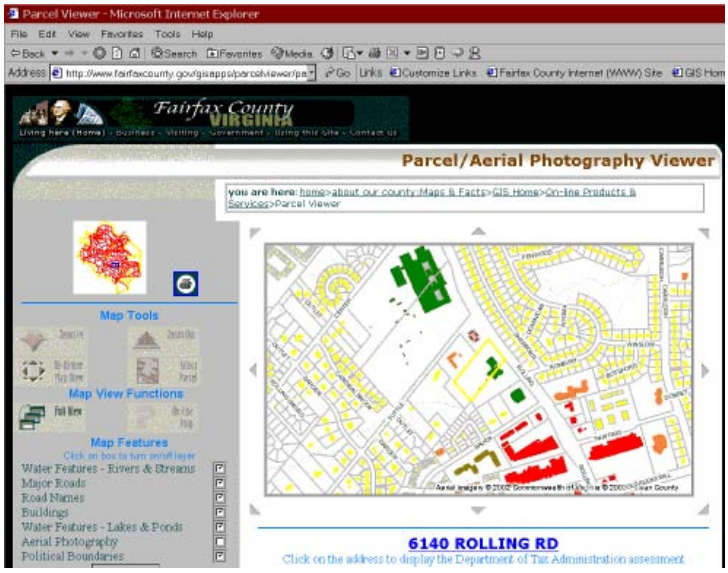
Future System Enhancements

County agencies and DIT will continue to assess business processes within the County to maximize the opportunities for increased use of the CRM. A comprehensive and flexible workflow capability will provide the tools needed to deliver strong citizen service and improved business processes. Future enhancements will include adding workflow routing functionality, based on subject matter, in County agencies, starting with business flows in the Department of Public Works and Environmental Services. The individual workflows will be integrated by the automatic importing of electronic messages or other communications and routed to appropriate staff members. Other modules will be added, including an Internet Mail Agent, which will manage and filter electronic mail. Integration of the County's Geographic Information Services (GIS) via a simplistic application interface allows pinpointing of related complaints or contacts within a specified geographic area. The robust GIS layers available for this mapping application are advantageous to the full range of Intranet Quorum users.

The ultimate goal with CRM is to provide the County with an enterprise-wide, automated, full function distributed Constituent Contact Center solution that will provide citizens virtual one-stop customer service within the County. It will organize the tracking and monitoring of communications, cases, contacts, events and complaints. This Web-enabled solution will provide a robust, consistent foundation for managing all citizen relationships. The County will utilize a knowledge-based, centralized repository of data, and will ensure all call taker analysts have the most current information at their fingertips, regardless of the communication source. This enhances access to one-stop services via the County Web site, Kiosks, IVR systems, fax, e-mail as well as by voice with one simple phone number, allowing the County to leverage emerging technologies as it move's into a more unified messaging environment. Live help using a Web interface, such as instant messaging, will give users another method for receiving real-time support, and will incorporate multi-media and other forms of digital and wireless communications to improve the user experience. Through Computer Telephony Integration (CTI), internal calls or transferred calls will be presented to call taker analysts along with a "screen-pop" of information from agency case systems and databases relevant to the citizen's call. This integrated approach will ultimately give the County the opportunity to better develop relationships with citizens and more effectively focus resources to address their needs. Over time, Enterprise CRM technology and the Constituent Contact Center will enhance citizens' confidence in County government.

To ensure access to the widest range of information, and to build a comprehensive knowledge base for call taker analysts to assist citizens, the Constituent Contact Centers will be able to form service level agreements and partnerships with appropriate state, federal, and private entities that are partners with the County in service delivery. In FY 2004, plans are to place more emphasis in the Department of Human Services Systems, providing the capability to implement the solution in other county call centers in place now. The Contact Centers will track all interactions, ensuring closed-loop resolution. The centers will be customized to route interactions and manage cases based on each agency's given business requirements. Incoming contacts can be routed to groups based upon selected criteria, levels of access or other parameters. Agencies will be able to monitor and manage workload and performance with a comprehensive set of analytical tools for real-time and historical reporting.

2.5 GEOGRAPHIC INFORMATION SYSTEM (GIS)



Fairfax County's GIS has continued its growth in users within the County Government as well as by public users via the internet. In FY 2004, the County's GIS program received a "Best of Breed" award in the 2003 Digital Counties Survey. This survey and award recognition was conducted by the Center for Digital Government, in partnership with the National Association of Counties. Other awards to county GIS programs include the VA Governor's Technology award for DPWES' use of GIS in routing refuse collection vehicles. Fairfax County's GIS has received international recognition via the Environmental Systems Research Institute (ESRI) Special Achievement in GIS (SAG) Awards for both the GIS Branch work and the countywide efforts in GIS. It also received recognition from NACo for its use of GIS in the reapportionment process. The increasing use of GIS in Agency operations is an important goal of GIS and the recognition by Governor Warner highlights that successful and innovative growth in use. In FY 2005, Fairfax County will continue increasing the opportunities provided by GIS with the following goals: increase the use of GIS across the County; increase the number of applications using GIS, particularly web-based applications for the public; increase the production of mapping products from digital data; and increasing the amounts of GIS data available to County staff as well as to the public through new data acquisition and data sharing agreements with the state, local governments and utilities.

The GIS data warehouse consists of over 1 Terabytes (TB) of digital color aerial imagery (raster data) for the County, and over 25 Gigabytes (GB) of vector data. The aerial imagery is comprised of scanned raw imagery and digital orthophotography. Some of the aerial imagery is now being served via the Web to County residents and the general public.

The vector data enables linkage of County data to the GIS. These data comprise over 50 million data elements in over 200 layers of geographic information. The vector data consists of property data: 341,000 parcels, 360,000 addresses, 11,000 subdivisions, 200 zoning overlay districts, 6,000 zone areas and 8,200 zoning cases; planimetric data including 600,000 contour lines; 4,000 miles of roads, 3,000 miles of water ways, 250,000 buildings; and thematic information like school attendance areas, public facilities and fire response zones. New data added in FY 2004 include sanitary sewer lines and structures, and new Chesapeake Bay Resource Protection areas and portions of the

comprehensive plan and of storm sewer infrastructure. Parcel data is also available via the County's Internet site.

In FY 2004, the GIS Branch completed digitization of the parcel and zoning data in record time (early February). This will enable the Parcel and Zoning books for CY 2003 to be printed and delivered earlier than before. Last year, the GIS Branch published two distinct sets of property and zoning books. The first set was delivered in September 2002 and contained the property maps for Calendar Year 2001 (through December 2001). In May 2003, GIS delivered the property and zoning maps for Calendar Year 2002 (through December 2002). This was a significant first for GIS, being able to turn around the property and zoning maps within five months of the cutoff of receiving parcel and zoning changes, which occurs on the last day of each year. The increased speed was directly related to the fact that in the zoning and parcel books are now produced directly from the GIS data warehouse.

Updating of the 1997 aerial photography was continued with about 100 square miles of the northwest quadrant of the County having orthoimagery delivered. The Northeast quadrant was flown in March 2003 and the orthoimagery was delivered in late spring 2004. The Southeast quadrant was flown in March-April 2004. Orthoimagery will be delivered in early FY 2005. This will complete the first orthoimagery update cycle. A complete quadrant was updated in 2001, 2003, 2004 and 2005. The 2002 update was skipped due to the availability of the State imagery. The underlying GIS hardware and software architecture was significantly enhanced. The Oracle-SDE data warehouse was moved to the County's Enterprise Sun server, providing greater reliability and speed. The Citrix application servers were upgraded and now have over twice the capacity as the previous servers. Day-to-day operation of those servers is now the responsibility of DIT's Technology Infrastructure Division. This allows the GIS staff to focus on new layers and applications. The County also received orthoimagery for the entire county area, plus surrounding jurisdictions through VGIN's state-wide orthoimagery acquisition in 2002.

Oblique aerial imagery was flown and delivered and brought online in FY 2004, Oblique imagery shows the sides of buildings, which orthoimagery does not. The side views enable County Assessors to more efficiently view and determine property values. The views also provide public safety officials with key information in planning emergency response, since they can see windows and doors and determine dimensions and heights above the ground.

The master address database project continued and commenced building the actual database, including cleaning and verifying the address data being entered into it. The project will now continue through FY 2005. Addressing data is a core component of the County's GIS. Because the vast majority of County data is about a specific location within the county (approximately 80-90 percent of municipal data are locational), it is important to ensure that the data can be linked to the GIS in order to take advantage of "place-based reasoning" and analysis. The most common locational link is property address. The resulting system will provide current and correct addresses to all County agencies. It will standardize the address format and simplify linkage to address by making the data available on an enterprise server using County standard RDBMS. The planning and requirements done so far on the Address database have assisted in the design specification of at least two major database systems being planned and implemented for other agencies: The new Integrated Assessment System (IAS, replacing the Real Estate Assessment and Billing System (REABS) and the new Fairfax Inspections Database Online (FIDO) the replacement for the Inspections Services Information System (ISIS).

The pioneering street centerline data sharing agreement with the Virginia Department of Transportation has resulted in the development of a commonly defined centerline file for all of the northern Virginia counties. This will enable the use of a regional centerline file for emergency preparedness planning and response, as well as for regular activities such as transportation planning and vehicle routing. In FY 2004, the State's GIS group (Virginia Geographic Information Network) augmented our centerline data with VDOT identifiers. This will enable the County to obtain specific VDOT data on County roads. In FY 2005 we will determine a method to maintain and share centerline information with the VGIN and VDOT so that each participant has up to date street centerline data.

GIS usage over the web continued to grow in FY 2004. In FY 2003, over 1.8 million dynamic maps were served over the Web. The new web application provides detailed pre-made property and zoning maps for free over the web. These maps can be downloaded and printed at 8.5" x 11" through 3' x 4' in size. Two other types of maps were also made available: contours and topography. DPWES also added pre-made resource protection maps to the set. Overall 2,220 pre-made maps are available. They are updated daily as changes

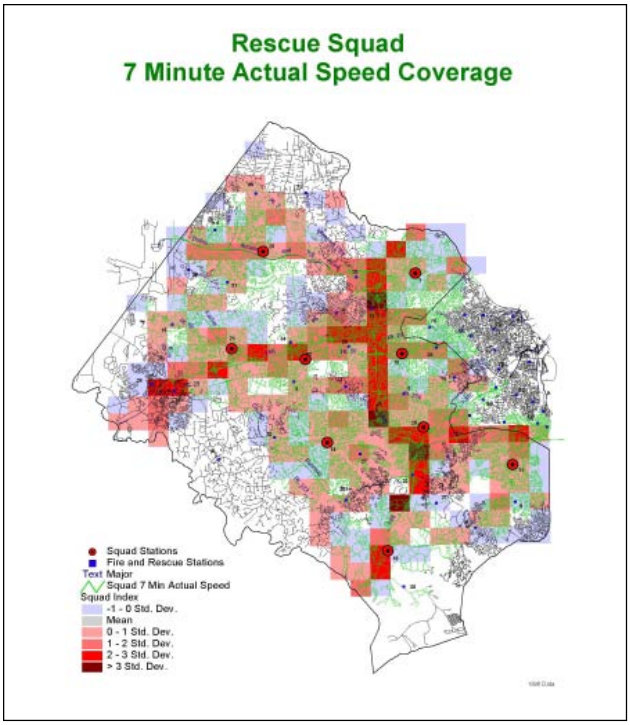
occur. The quick updates are an advantage of having a completely digital mapping process. Request to download these maps more than doubled, from 160,000 in calendar year 2003. GIS now has 50 layers of GIS data for free downloads via the internet. That application has also increased web usage.

The GIS Branch continues to provide County employees support via the DIT Technical Support telephone numbers. Pagers are issued to the GIS staff to provide quick callback response to users.

Administrative Efficiencies and Service Quality Improvement

Over 25 county agencies now use GIS to some extent in their operations, including the GIS Branch itself.

- The transition to digital property and zoning information now enables the GIS Branch to maintain these maps daily. These maps are processed and made available for County staff and public users via the web.
- The centerline file was modified to reflect the Northern Virginia common centerline elements and made available to County agencies.
- Substantial savings are being realized in the Department of Public Works and Environmental Services through the use of GIS. It was recognized by the State of Virginia for its integration of GIS with refuse vehicle routing and the subsequent flexibility and cost savings.
- GIS is being intensely used by the Department of Public Works as part of the perennial streams evaluation project. GIS technology has enabled the mapping to be completed in weeks rather than months.
- The Department of Public Works has digitized the sanitary sewer lines into the GIS and maintains them regularly. Storm sewers are in the process of being digitized, and should be complete by the end of FY 2005.
- The Department of Zoning is digitizing the Comprehensive Plan into the GIS for easier maintenance and viewing. That work will be completed in FY 2005.
- Public users can now check on the status of permits for development and view maps of the work via the internet.
- GIS was used extensively in planning for and responding to flooding from Hurricane Isabel.
- The Office of the County Executive is using GIS extensively in the interdepartmental Strengthening Neighborhoods Building Communities effort. That program does extensive analysis of demographics to identify areas to focus strengthening efforts
- In health areas, GIS has been used as part of the West Nile Virus planning and response, as well as tracking tuberculosis in the County. Previously the GIS had proven its value in the canker worm outbreak in FY 2001 (and before that the Gypsy Moth outbreak). GIS enabled County staff to quickly identify residents who would be affected by planned canker worm spraying and contact them ahead of time. The GIS also enabled them to provide spraying coordinates to the helicopter spray crews so that balloons would not have to be used. This was a significant time and cost savings.
- The Fire and Rescue Department (FRD) has been making substantial use of GIS and is experiencing significant savings. For instance, in the process of responding to Fire Hydrant and Insurance queries, the GIS saves about 50 percent in staff time to determine the distances. A new Web application being planned will provide even more savings once it is developed and online.



- Another example of FRD's savings is in identifying the five-minute response time areas for stations — a factor crucial to establishing response areas that are within response time limits. Staff savings were estimated at 98 percent in doing that countywide analysis.

- The Police Department had significant success in its use of GIS in crime analysis. In two separate instances, the Department's crime analysts were able to identify spatial patterns in crime incidents and successfully predicted the subsequent crime locations. In both instances suspects were arrested. Daily maps are now available showing the previous day's crime statistics.
- The Department of Planning and Zoning uses GIS regularly in its planning activities, and is in the process of converting the paper based comprehensive plan to an interactive GIS. This will enable them to continue with the process of making the comprehensive planning documents completely digital.
- The GIS now contains data from the Fairfax County Water Authority and the City of Fairfax on hydrants and water mains.

In FY 2005, the GIS Branch will initiate more strategic interaction with County agencies to foster their development of GIS capabilities and integration into their business processes. The preceding years have seen GIS take root in most county agencies. In past years, The Department of Tax Administration, the Fire and Rescue Department and Department of Health have each added a GIS position, and Department of Transportation and DPWES added several full-time GIS positions. The challenge now is to foster, broaden and integrate that growth with management involvement and support.

The GIS Branch is also pursuing a number of strategic activities to foster the sharing of GIS data and resources, particularly in the area of homeland security. The County is a member of NACo's GIS committee which looks at key GIS issues affecting counties. GIS staff has also participated in planning the implementation of the Geospatial One Stop portal (*http://www.geodata.gov/gos). Lo*cally, Fairfax County is a member of the Northern Virginia GIS managers group — an informal group that regularly meets to coordinate activities. The most recent accomplishment is the development of a regional centerline file structure that will be part of a state wide centerline file project. The Branch works closely with the State's GIS agency (Virginia Geographic Information Network) and jointly participated in a national summit to further the coordination, cooperation and collaboration on GIS issues and data. Internally, the GIS Branch has been working with the County's Emergency Management Office to identify possible funding opportunities for some of the County's GIS data and/or hardware. The GIS Branch now directly participates in the Emergency Operations Center when it is activated. In addition, the GIS Branch is working with the Police Department to develop a web-based crime mapping application that will enable police to easily view up to date crime statistics and their locations. Some of this functionality will also be made available to the general public.

Additionally, there will continue to be emphasis on data quality, system reliability and connectivity as well as implementation of new GIS applications. These aspects are crucial to implementing GIS as a data "utility" across the County so that users at any of the County's offices can "turn on" their GIS "data tap" and have all of the data they need available to them immediately. Data quality is a paramount issue. Rigorous Quality Assurance/Quality Control measures have been implemented on the parcel data updates. Similarly, rigorous quality standards have been developed for the aerial imagery being acquired.

System reliability is becoming an increasingly crucial issue as more users integrate GIS into their daily operations. To ensure that the technology is available to them, the GIS Branch is procuring additional servers and software to provide redundancy in case one of the systems goes offline. The GIS Branch is now monitoring the performance of its applications and systems to ensure reliability. Critical applications are monitored around the clock and staff members are on call if system outages occur outside of work hours.

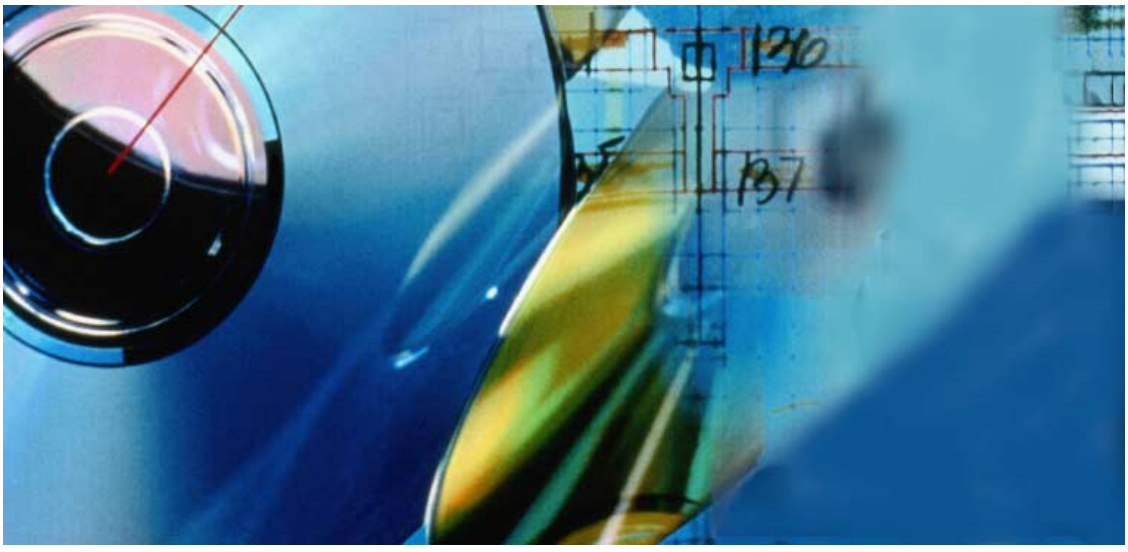
System connectivity is essential for thorough integration of GIS into County operations. It involves establishing robust, reliable and preferably real-time links between the GIS data warehouse and other vital county databases like REABS, the Land Development System (LDS) and others. GIS staff will be working closely with other agencies such as the Department of Tax Administration and the Department of Planning and Zoning to ensure optimum connectivity between the GIS data warehouse and their operations as well as with DIT to help provide sufficient bandwidth to offices that require it for GIS.

Finally, as the GIS Branch works closely with other agencies, staff will design and implement specific applications to enable users to more easily do the spatial analysis and querying they need to do with the GIS data. These custom applications will not only decrease the time necessary to do the queries, but it will increase the number of staff that can use the data since the applications will be designed specifically for their operations.

2.6 FAIRFAX INSPECTION DATABASE ONLINE (FIDO)

The Fairfax Inspections Database Online (FIDO) project (formerly known as ISIS Replacement) is a strategic initiative to consolidate inspection services provided by multiple County agencies into a single software solution and to implement e-permitting capabilities for customers. The FIDO project will replace more than two-dozen existing databases and systems spanning four user agencies. The new system will enable all of the user agencies to work more collaboratively in their inspection and code enforcement efforts. This multi-million dollar, multi-year project connects four agencies in providing permitting, plan review, inspection, complaints management, and environmental health related services. Goals for this project include moving from the mainframe environment to a platform that enhances multi-agency access and participation in the affected processes, enhancing customer service by streamlining the permitting process, and facilitating the performance of as much business as possible via the Internet. It is envisioned that the new system will provide online permitting, facilitate enhanced plan review capabilities, integrate with the GIS to capture and present data in a graphical format, integrate with the existing Land Development Systems' (LDS) database to ensure the seamless availability of land development data, and provide a virtual one-stop shop for processing permit applications.

The approach for this project represents a concerted effort to harness the expertise of all stakeholders in the design, acquisition, and implementation phases to ensure a seamless, streamlined integration with all other pertinent systems. A project steering committee comprised of local and national agencies, both public and private, was formed to provide guidance in these matters. In addition, teams of representatives from each of the core user agencies and the Department of Information Technology (DIT) have been established to assist in the management of this effort and for the coordination of gathering system requirements from the stakeholders. Customers and county staff that use the system on a daily basis formed numerous work-groups to provide critical input for the development of the user and system requirements. Additionally, these workgroups included staff of the Health Department, Department of Tax Administration, Fire and Rescue Department, Department of Planning and Zoning (DPZ), Department of Public Works and Environmental Services (DPWES), Department of Finance, and DIT. The collaborative efforts of these groups provided input on the needs of all the beneficiaries, with a concentrated focus on the day-to-day customers and the numerous organizations that rely on the County for permit processing and inspection information. Many of these teams continue to work on the configuration and implementation of the new system. The vision and long-term goals established for FIDO require that the project be divided into three manageable segments. Although the primary focus of this project is the replacement of the legacy Inspection Services Information system (ISIS), the first two phases that have been implemented include the Complaints Management System for the DPZ and the Contractor Licensing modules for the DPWES and the Health Department.



The FIDO system creates adaptability on a new platform that will serve as the foundation for all future e-permitting enhancements while providing immediate additional functionality and a streamlined process. The project will include the acquisition of a web-enabled system with the capability to provide access to permit information and the permit process 24 hours a day, 7 days a week and the availability of real-time wireless inspection results. The system will provide a virtual one-stop shop offering e-permitting opportunities for many projects not requiring plans. The replacement system will also provide managers the ability to perform an ongoing analysis of efficiency and effectiveness of resource utilization (including tools such as workflow processing, deadline reminders, identification of bottlenecks within the process, and benchmarking indicators).

Anticipated future enhancements to the new system include the electronic submission, distribution and review of plans and permit applications by all required review agencies; the issuance of permits online for complex projects requiring the submission of large scale plans; the use of project-specific extranet sites to facilitate communication and to create a more collaborative plan review and permit issuance process.

The completion of this project will position the County to utilize additional e-government capabilities and will more fully integrate all of the land development processes to facilitate information sharing and one-stop permit processing. While enhancing customer service, this project will allow greater and immediate public access to permit related data, which in turn reduces customer inquiries and saves significant amounts of staff time. The management of the land development process will be enhanced by the ability to track construction projects throughout the project lifecycle. The consolidation of related data into a single system will improve the process as well as the consistency and reliability of information provided to customers. Finally, the vastly improved search and retrieval capability will facilitate research by the public and the County.

The early stages of this effort focused on the collaborative development of a comprehensive Request for Proposal (RFP) to procure an appropriate solution for the e-permitting system and to replace the multiple stand-alone inspection related databases being utilized by the Fire and Rescue Department (FRD), as well as the functionality required to manage complaints for the Department of Planning and Zoning along with ISIS. In FY 2003, a comprehensive review of vendor proposals — including both custom solutions and COTS packages was completed. The review process included the formation of Selection and Technical Advisory Committees (SAC and TAC) that involved representation from all key user agencies as well as from the DIT. From this process, the Hansen, Inc. solution was selected. In FY2004, the focus shifted to configuration and implementation of the new suite of software products. The result has been the successful implementation of the first two phases of the project — Complaints Management and Contractor Licensing.

The architecture for the new system is compatible with the existing LDS client/server architecture, which includes an Oracle database. This effort includes replacement of the following systems:

- Inspection Services Information System (ISIS)
- Building Code Services Online (ISISnet)
- ISIS Handheld Inspections System
- Permit Applicant Tracking System
- Fairfax County Contractor Licensing Database
- Plan Review Comments Web Application
- Elevators Inspections Database
- County Cross-connections Database
- HMIS system for Environmental Health Services
- HealthSpace system (an interface to the State HealthSpace system will remain)
- Residential Use Permits (RUPs) portion of the PAMS Application
- Non-Residential Use Permits (Non-RUPs) Application
- Multiple stand-alone Fire Prevention Services Databases
- Multiple stand-alone Environmental Health Services Databases
- Paradox Complaints Tracking System

The hardware and software solution is consistent with County standards and fits well with County's e-government strategy of using emerging technologies to enhance services. In FY 2005, much of the work for design, construction, and implementation of the ISIS Replacement portion of the project will be conducted. *(See section 3 for project information).*

2.7 TELECOMMUNICATIONS

Voice communications is a bedrock technology in today's County government. As government is asked to do more with less, stretching limited financial and human resources, it relies upon efficient voice communications to improve efficiencies and meet the growing needs of citizens. Whether it is citizen access via e-government, efficient management of government information, the advancement of education, the safety of our children on school buses, or most recently, homeland security, voice communications plays a critical role.

The goal of integrating voice, video and data communications onto a common structure, which has been envisioned since the early 1980's, is now becoming a reality. This convergence will bring tremendous benefits to enterprises such as Fairfax County that utilize large and disparate voice and data networks. New types of voice service platforms that support data application integration are commercially available and are seen as a cost effective means to improve the County's service to its citizens. Currently, that fully converged world is the provenance of "early adopters." After decades of high quality phone service provided through the traditional telephone networks, users expect new systems to have consistent voice quality, with never a doubt that they will hear dial tone when they lift the telephone receiver. At this point the industry is in the process of determining how to ensure 'five nines' quality in converged networks.

The long-term strategy for Fairfax County is to implement Voice over IP (VoIP) services and obtain the maximum utilization of its networking capabilities as well as garner the advantages in functionality and features that this leading-edge technology provides. However, the Department of Information Technology (DIT) believes that the technology will soon be stabilized to the point where the risk of implementation will be acceptable to the County. As a result, DIT is recommending a hybrid strategy for voice services, utilizing convergent-ready Hybrid Digital PBX technology.

This hybrid PBX/IP-based strategy will minimize service quality risk by utilizing current generation PBX technology for the bulk of the immediate County voice communications needs. By introducing IP-based telephone service at the smaller sites, they can be brought into the common voice architecture, without investing in larger more expensive PBX equipment for these smaller sites. This approach is not without some service quality risks at the smaller sites. Careful planning will signifi-cantly reduce the risks involved in converging IP data traffic with IP voice traffic onto one data network.

DIT believes this strategy is both prudent and forward-looking. It will position the County to increase its use of advanced convergent technologies as these technologies mature. And it is in full alignment with the County's principle of implementing contemporary, but proven, technologies.

The following six strategic goals for Fairfax County voice services were developed and reviewed with senior County technology managers. These goals are the building blocks of Fairfax County's Strategic Voice Technology Plan.

Goal 1: Optimize the total life cycle cost for voice services across the County Government. Make use of available facilities, such as the I-Net to reduce operational costs. Protect County investment in plant and equipment.

Goal 2: Provide countywide common voice architecture. Allow any County phone instrument to be accessed from the primary voice network. Move to a common, standards-based architecture as industry standards become stable.

Goal 3: Provide remote technology network access for voice and data to expand secure remote access uses and Telework. The switch architecture should provide a seamless extension of voice communications and allow remote access to telephone features.

Goal 4: Provide compatibility with "best-in-class" citizen access technologies and processes.

Goal 5: Develop a "survivable" architecture that is scalable. In the unlikely event of the loss of a major County government facility, e.g., the Government Center or the Massey Complex, the architecture of the County voice communications systems should be re-configurable to permit continued government operations without degradation.

Goal 6: To converge voice and data onto one network. The switch architecture should support convergence of voice and data onto a single IP switching fabric.

Technical Requirements

To achieve the Goals for next generation voice switch architecture, as discussed above, there are a number of technical requirements that the target architecture should meet:

System Topology:
Create an architecture that minimizes installation of independent phone systems for various sites

The future switch architecture must support the County's integrated network philosophy, and do so with a single logical architecture. It must support utilization of the I-Net. The solution must address the large number of County locations of various characteristics, supporting a variety of business and operational needs of county agencies. It must be scalable and expandable. There should be a suitable range of configurable telephone instruments and feature sets. It must also support a wide variety of trunk types and speeds and it must address the following requirements:

Feature Requirements:
The voice network infrastructure must support a wide range of features, such as:

- Constituent Relationship Management (CRM) Technology
- Automated Call Distribution/Interactive Voice Response
- Computer Telephone Interfacing
- Telework
- Unified Messaging
- County-wide Voicemail
- Inbound Caller ID
- Ad Hoc Teleconferencing

Uniform Dialing Implementation Requirement:
The architecture must facilitate development and rollout of a uniform dialing plan across the County offices.

Enhanced Automatic Location Information (ALI) Requirement:
The architectural must fully support requirements for enhanced 911 Automatic Location Information.

The transformation of Fairfax County's voice platform is a significant endeavor that will require a great deal of planning and thoughtful implementation over many months, but it will have a revolutionary impact on the way that the County conducts business and provides services to its citizens. Voice over IP (VoIP) is clearly the strategic technology that the County will move toward, using a phased approach to minimize the risk at the two core locations. The new voice network infrastructure will provide uniformity of telephone features at all County locations and will be the foundation upon which to integrate function specific call centers, creating a virtual Constituent Contact Center that will streamline incoming call processing while reducing call center operating costs by maximizing agent productivity and lay the groundwork for the incorporation of future appropriate technologies.